Unit 12
Day 8
Symmetry

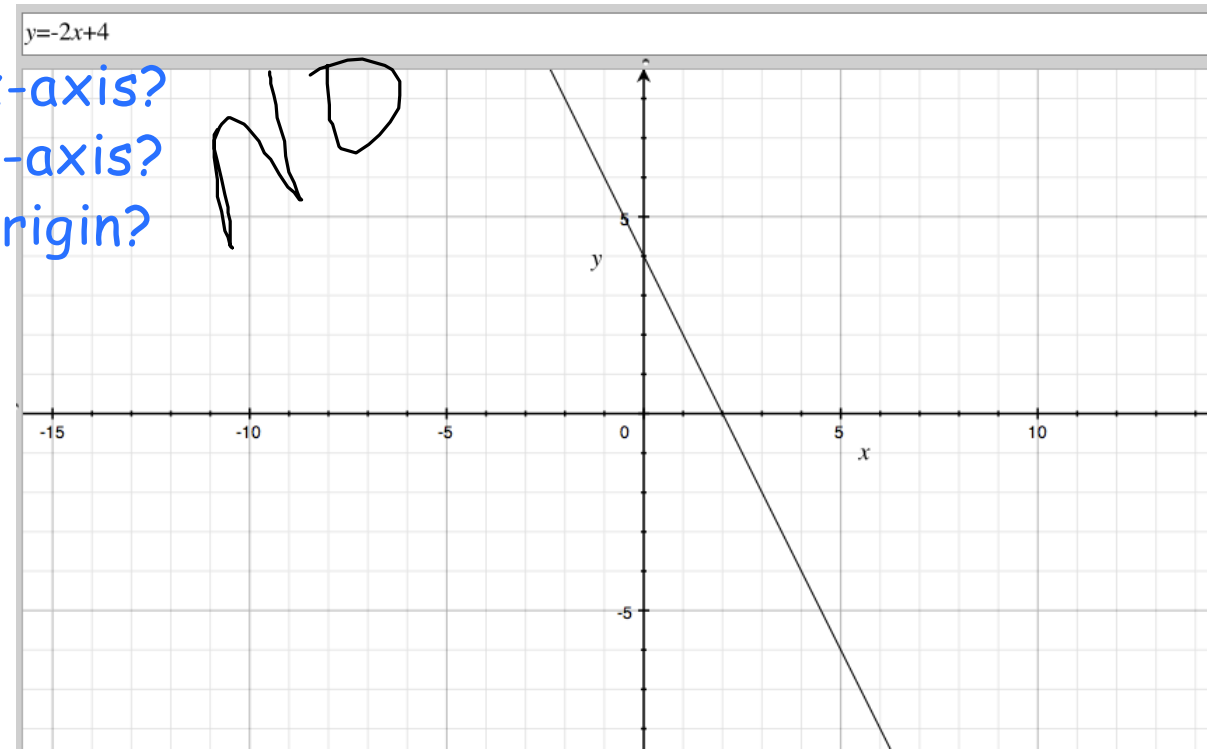
A function whose graph is symmetric with respect to the Y-AXIS is called and EVEN FUNCTION.

A function whose graph is symmetric with respect to the ORIGIN is called an ODD FUNCTION.

Symmetric to x-axis?

Symmetric to y-axis?

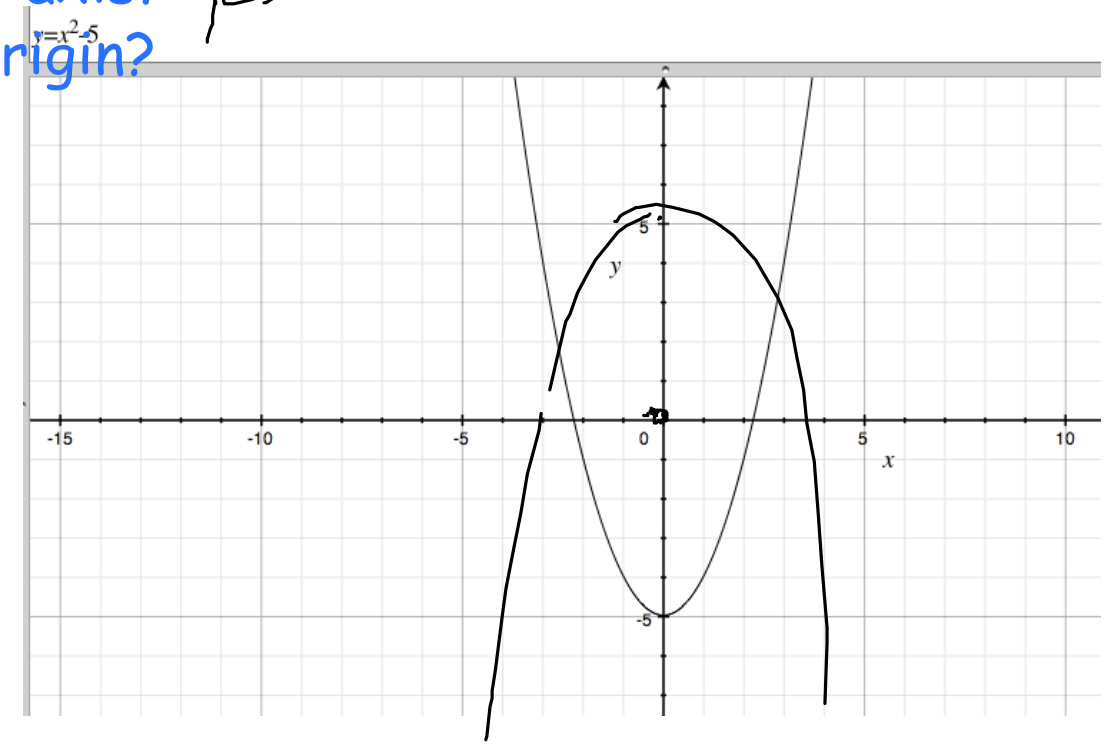
Symmetric to origin?



Symmetric to x-axis? NO

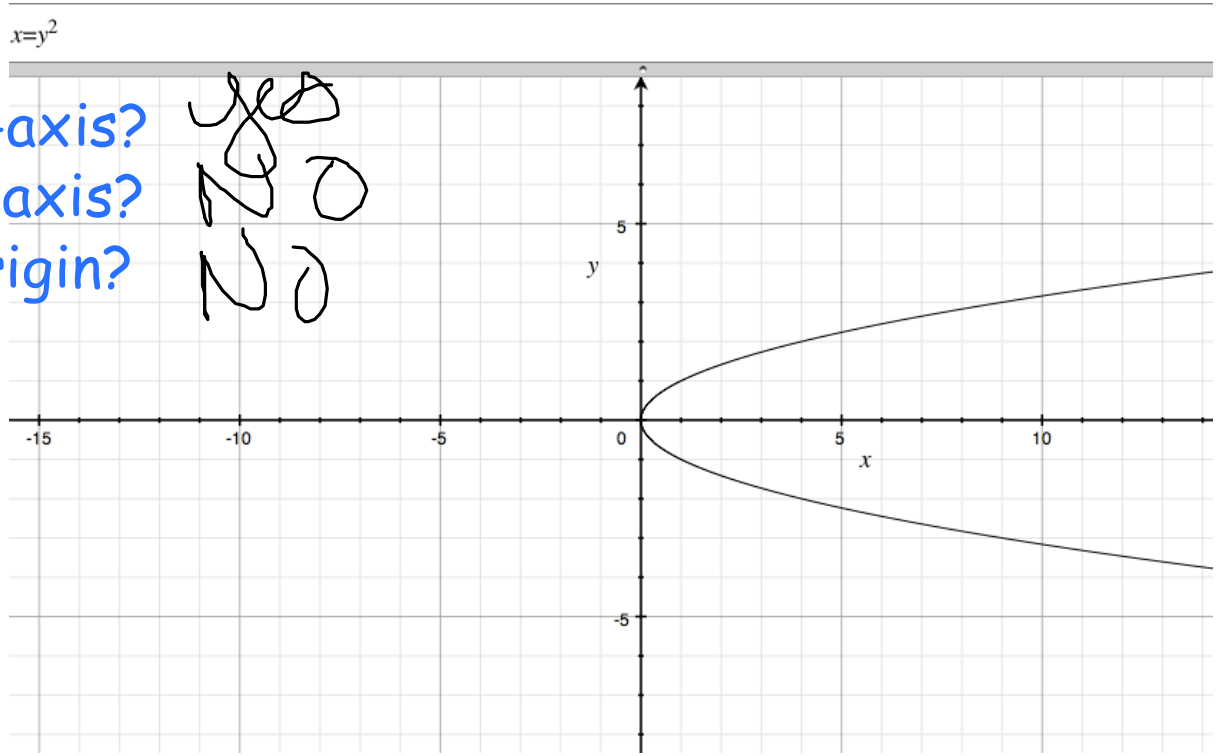
Symmetric to y-axis? yes

Symmetric to origin?



Function? NO

Symmetric to x-axis? YES
Symmetric to y-axis? NO
Symmetric to origin? NO



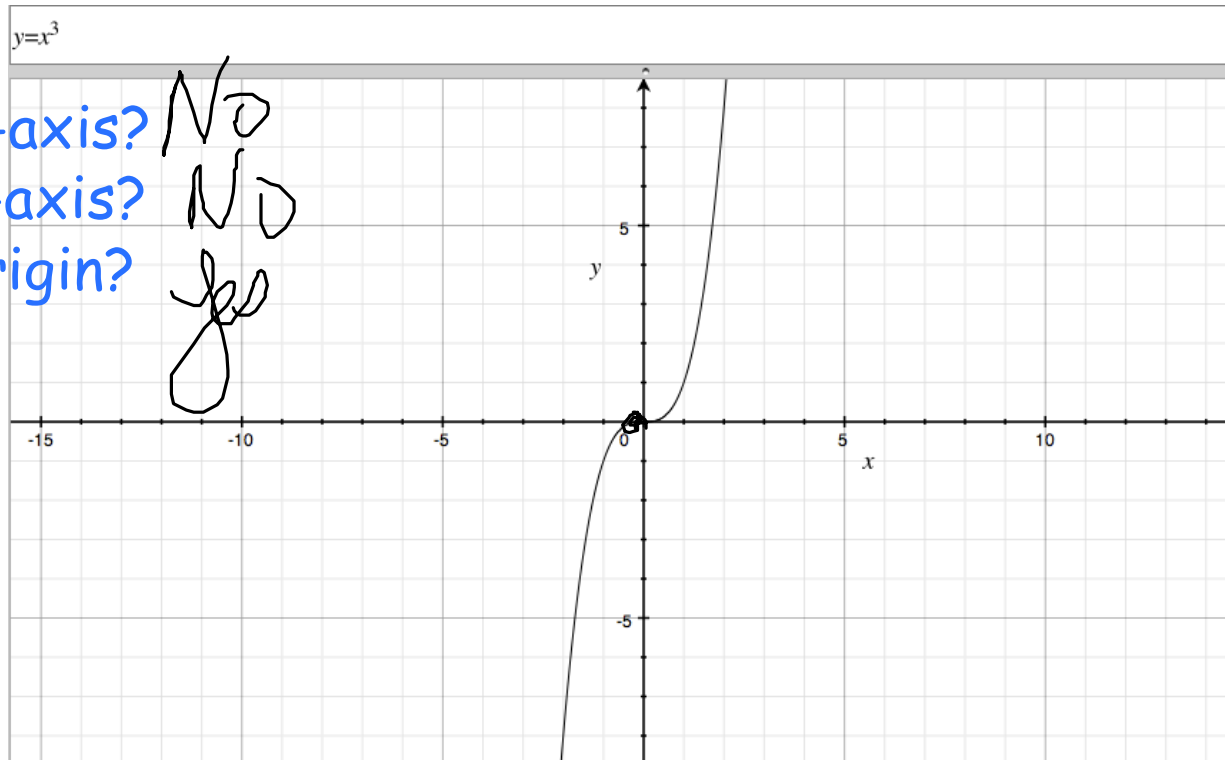
Function?

Yes

Symmetric to x-axis? No

Symmetric to y-axis? No

Symmetric to origin? Yes



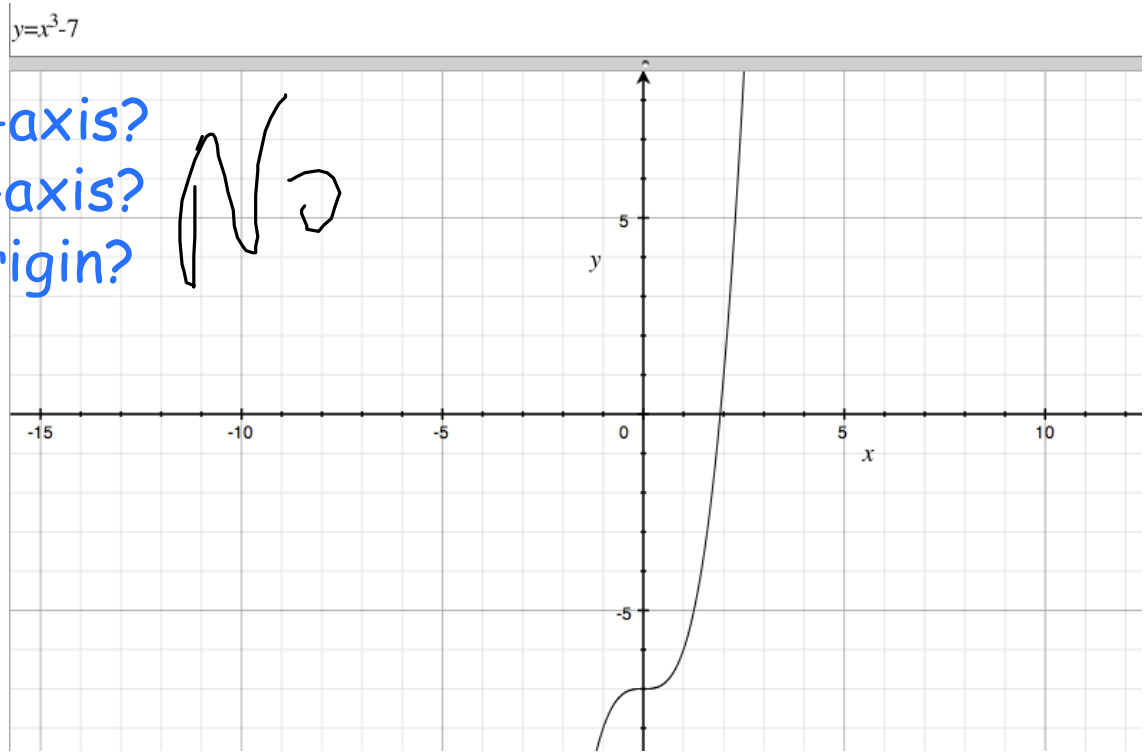
Function?

yes

Symmetric to x-axis?

Symmetric to y-axis?

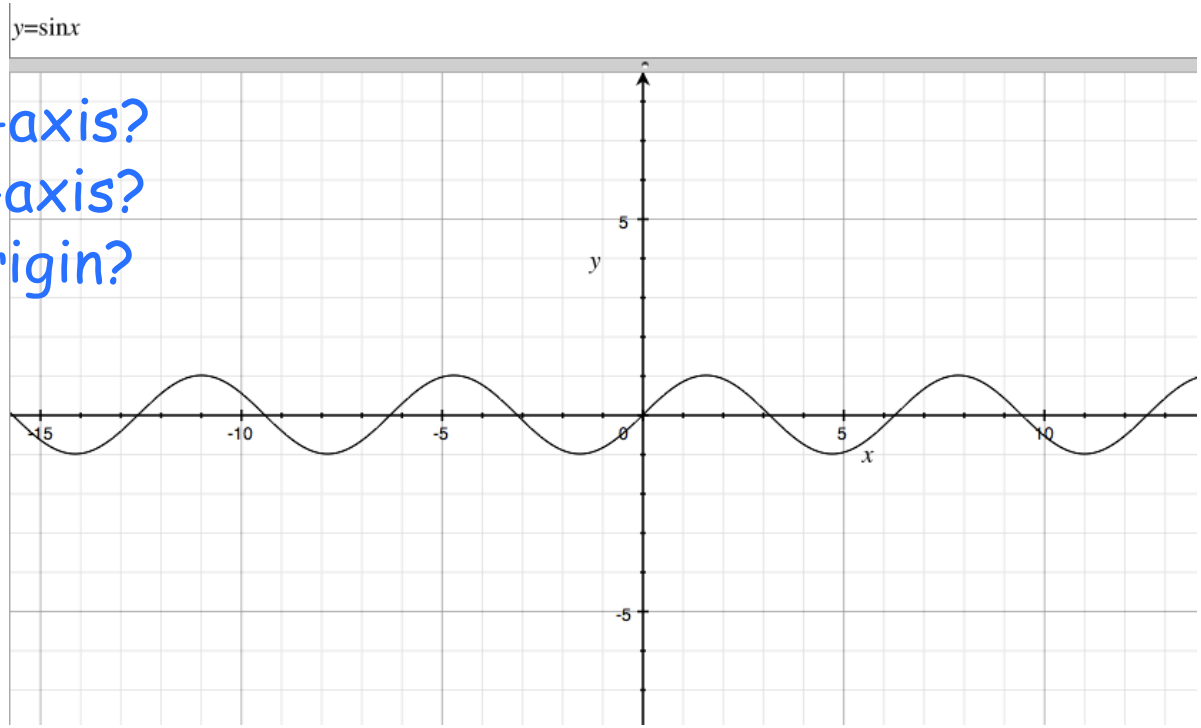
Symmetric to origin?



No

Function?

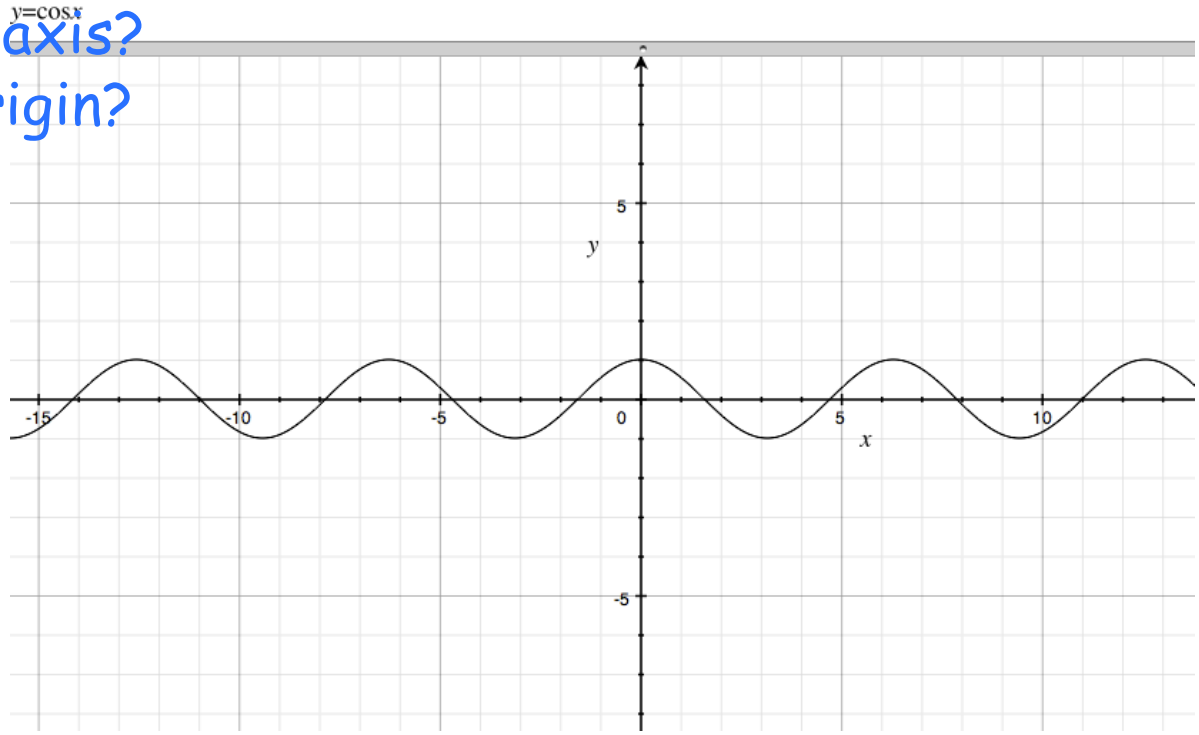
Symmetric to x-axis?
Symmetric to y-axis?
Symmetric to origin?



Symmetric to x-axis?

Symmetric to y-axis?

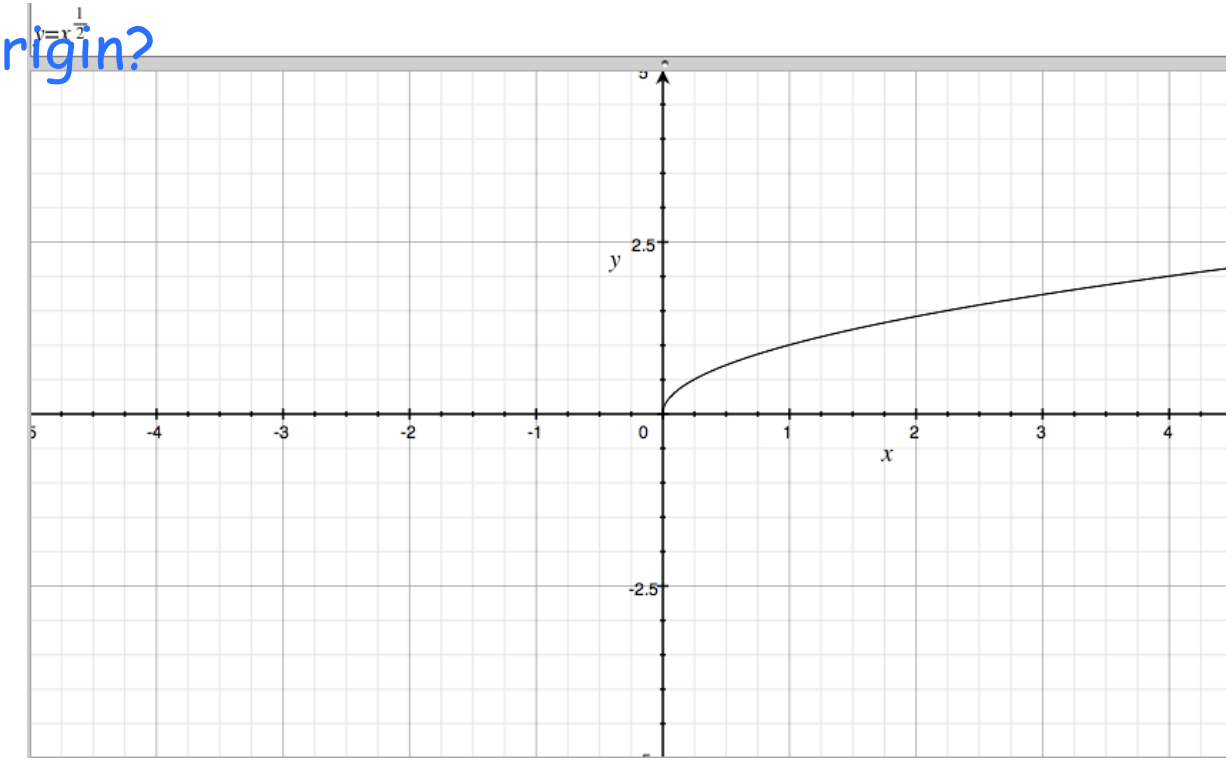
Symmetric to origin?



Symmetric to x-axis?

Symmetric to y-axis?

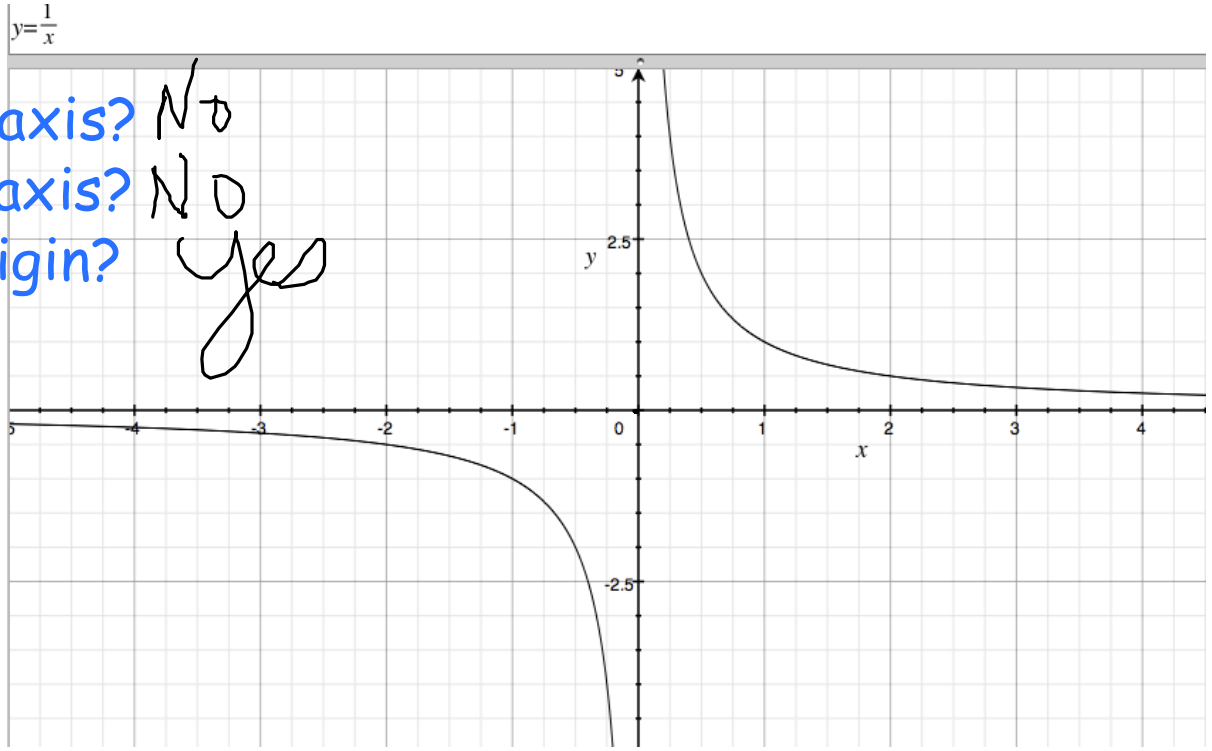
Symmetric to origin?



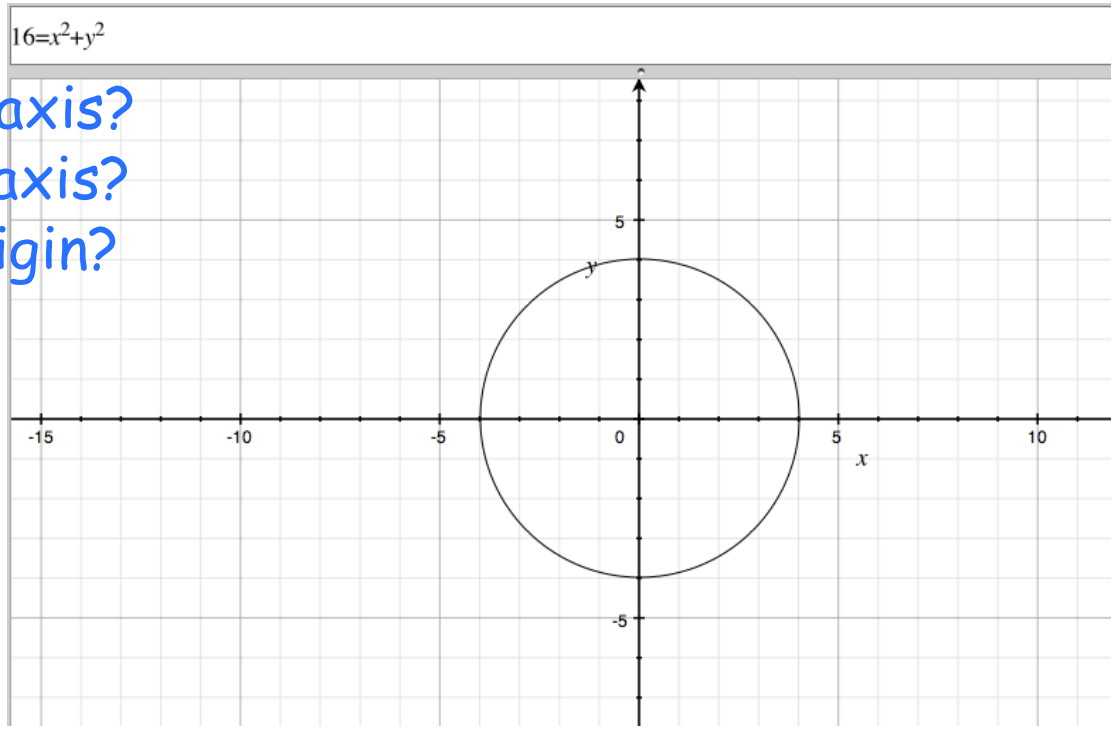
Symmetric to x-axis? No

Symmetric to y-axis? No

Symmetric to origin? Yes



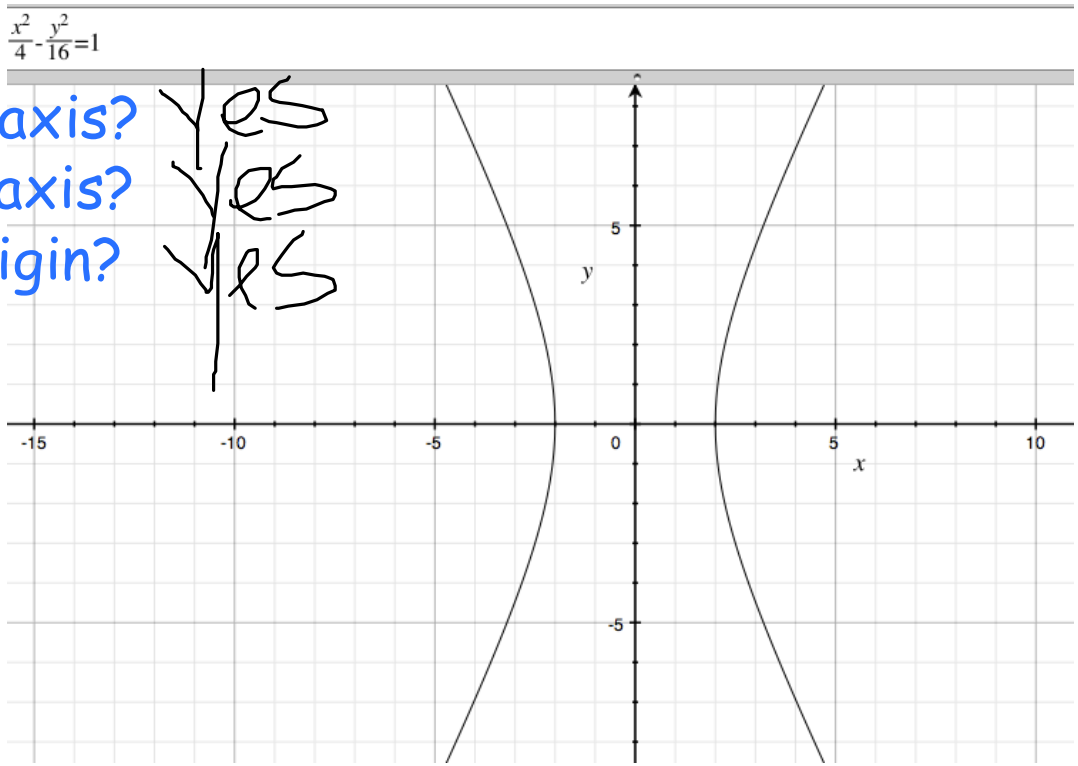
Symmetric to x-axis?
Symmetric to y-axis?
Symmetric to origin?



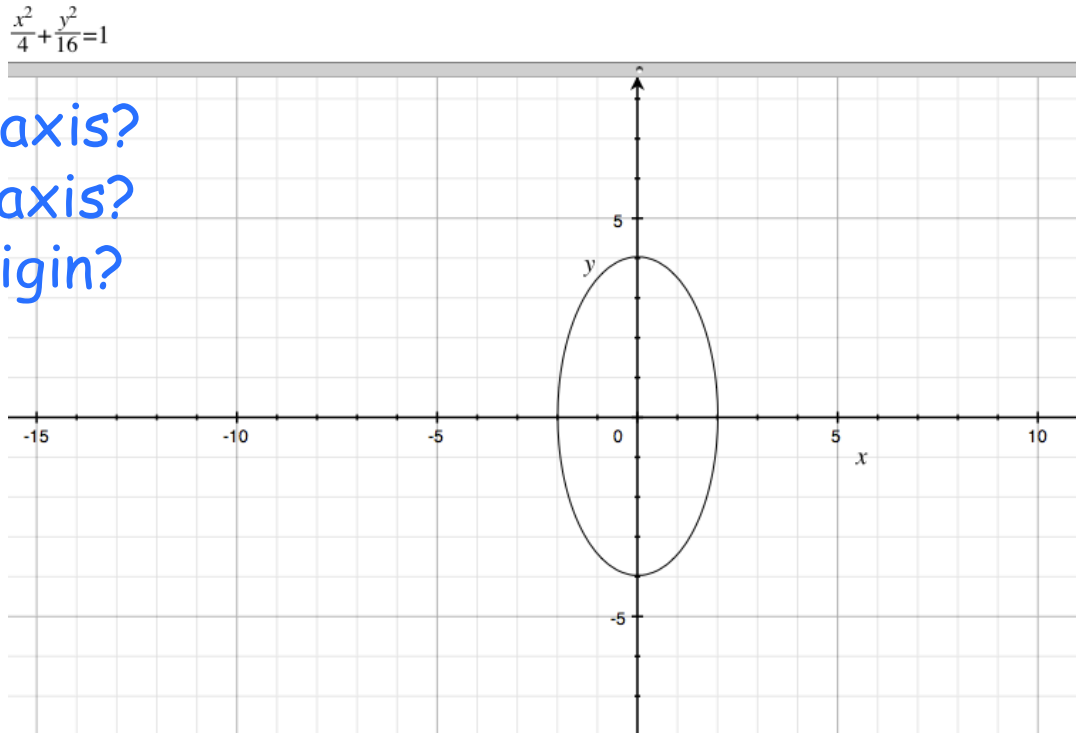
Symmetric to x-axis? Yes

Symmetric to y-axis? Yes

Symmetric to origin? Yes

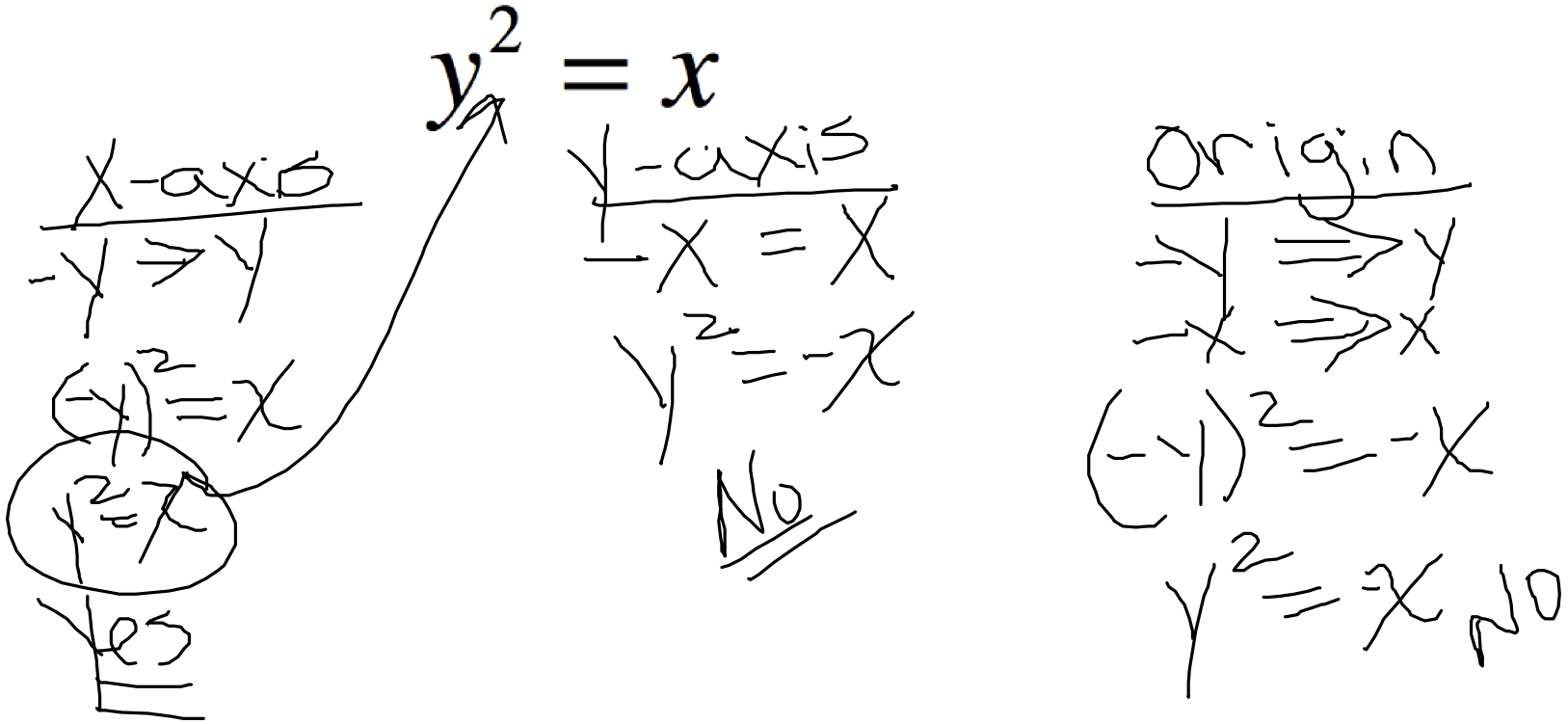


Symmetric to x-axis?
Symmetric to y-axis?
Symmetric to origin?



List the x and y intercepts and test for symmetry with the x-axis, y-axis and origin.

$$y^2 = x$$



Example 2

List the x and y intercepts and test for symmetry with the x-axis, y-axis and origin.

$$y^2 - x - 4 = 0$$

Example 3

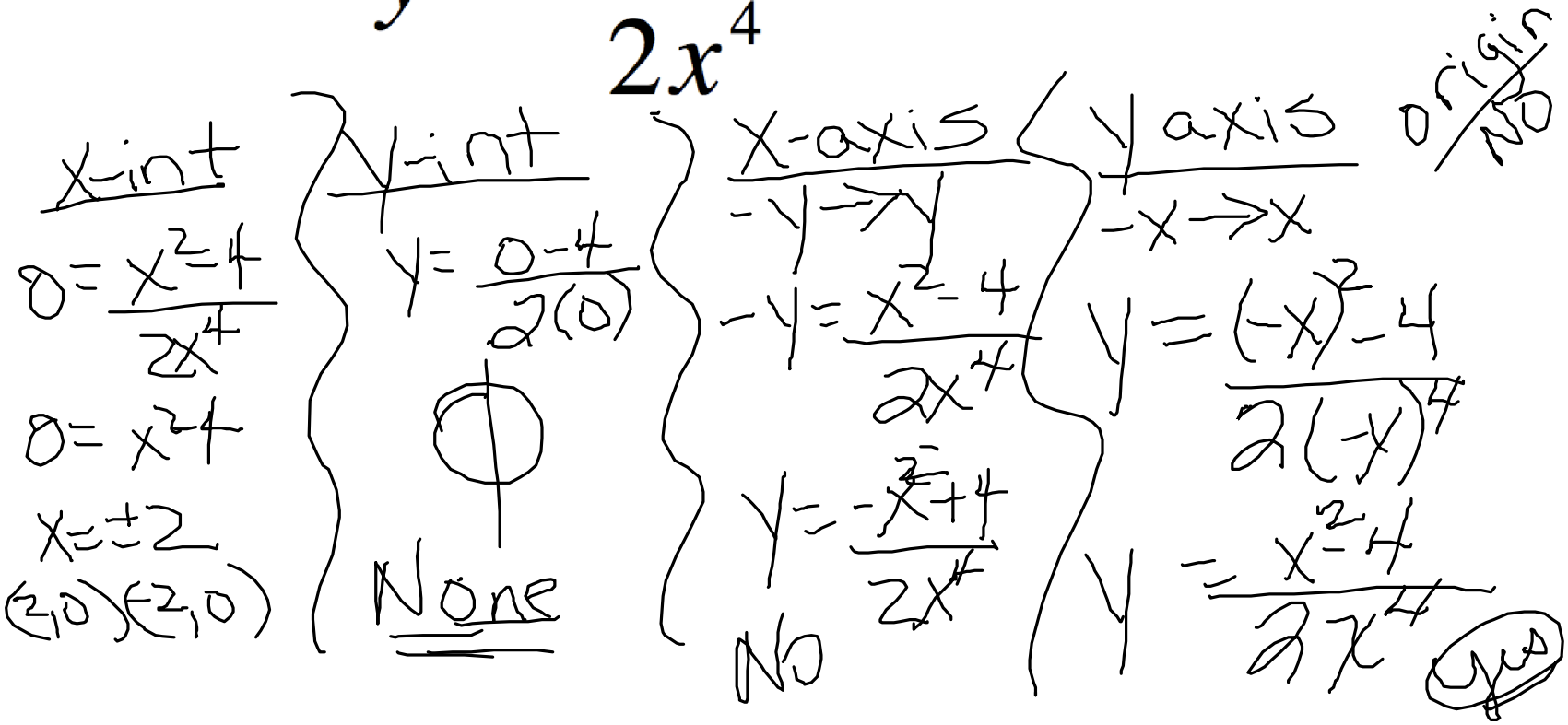
List the x and y intercepts and test for symmetry with the x-axis, y-axis and origin.

$$y = x^4 - 1$$

Example 4

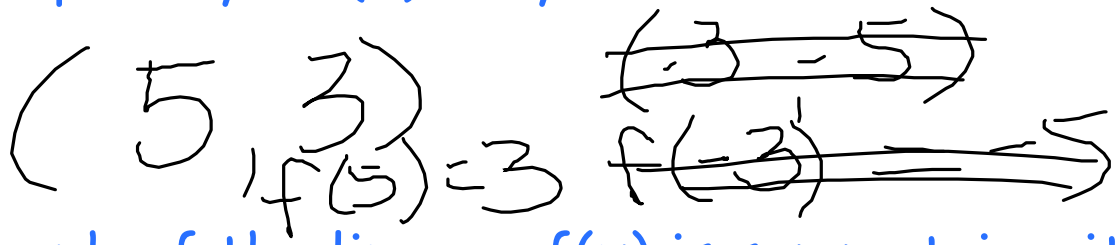
List the x and y intercepts and test for symmetry with the x-axis, y-axis and origin.

$$y = \frac{x^2 - 4}{2x^4}$$



Suppose f(5)=-3, find another function value given that:

1 - The graph of y = f(x) is symmetric to the x-axis



2 - The graph of the line y = f(x) is symmetric with respect to the line y = -2.

3 - f is an odd function.

Test for symmetry to the x-axis, y-axis and origin.

$y = 3x^2 + 2$

$y = \dfrac{-3}{x-5}$

Test for symmetry to the x-axis, y-axis and origin.

$x = 2y^2 + 5$

$xy^3 = -2$

Test for symmetry to the x-axis, y-axis and origin.

$x^2 - y^2 = 4$

$y = \sqrt[3]{x^2 - 6}$

Ex7:

Given f(2)=-6, find another point of the function if:

a) f(x) is an odd function

b) f(x)=f(-x)

c) f(x) is reflected around the x-axis

d) the graph is symmetric to the line of x=5

HOMEWORK

p. 246-7: 4-10, 13-20, 31-40
Worksheet: Translations, Reflections, Scalings